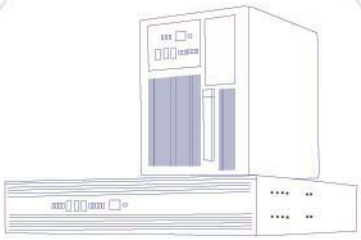
CHLORIDE
POWER PROTECTION

lowpower

ACTIVE

Operating manual
Bedienungsanleitung
Manual de usuario
Manuel utilisateur
Manuale d'uso
Manual de intruções



ACTIVE
700
1000
1500
2000
3000

Uninterruptible Power System
Unterbrechungsfreie Stromversorgung
Sistema de Alimentación Ininterrumpida
Alimentation Sans Interruption
Sistema Statico di continuità
Sistema de Fornecimento de Energia Ininterrupto

CHLORIDE
POWER PROTECTION

ENGLISH UK

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1. Safety

1.1 Intended use

This unit serves as an uninterruptible power supply (UPS) for connected loads. The unit is in compliance with all relevant safety regulations concerning information technology equipment, for use in an office environment.

Depending on the type and rating of the UPS unit, certain configurations of battery extensions may be connected. These battery packs may only be connected to the compatible basic UPS unit.

1.2 General Warnings

⚠ ***WARNING:*** *We consider the safety of personnel to be of paramount importance. For this reason, it is essential that procedures relating to safety in this manual be carefully reviewed before commencing work, and properly adhered to thereafter. The User or Operator may intervene in the operation of the UPS provided that the instructions laid out in the section 3 ("Setup and Installation") are strictly followed.*

⚠ ***WARNING:*** *Even when all switches and/or circuit breakers are open, dangerous voltages are present within this unit. There are no user-serviceable parts inside. Only factory authorized personnel may carry out any operation that requires protection panels to be opened and/or removed. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions or violation of electrical codes.*

⚠ ***WARNING:*** *In order to comply with UL requirements, a disconnection device shall be available at the UPS output (note: the output plug can be considered as a disconnection device).*

⚠ ***WARNING:*** *In order to comply with UL requirements; to reduce the risk of fire, connect the UPS input only to a circuit provided with branch circuit overcurrent protection for 20 amperes rating in accordance with the National Electric Code, ANSI/NFPA 70)*

1.3 Safety Notices

⚠ ***WARNING:*** *Read the following safety notices carefully! Disregard of these safety notices may endanger your life, your health, the reliability of your unit and the security of your data.*

- Transport the unit only in suitable packaging (protected against jolts and shocks).
- If the UPS is moved from a cold environment to a warmer operating location, condensation may occur. Before you switch on the unit it must be absolutely dry. An acclimatization period of at least two hours is required.
- The UPS must be installed in accordance with the environmental conditions specified in sections 3.6 and 3.10.
- Even with all buttons in "OFF" position, the unit (UPS) is not isolated from the mains. To isolate completely from the mains, the input power cord must be disconnected.
- This unit services power from more than one source. The output terminals and/or receptacles may have voltage present even when the unit is unplugged. UPS's present a different safety issue than most electrical equipment because unplugging the unit puts it into battery mode. Unplugging the UPS does not remove electrical charge.
- In case of interruption of the mains voltage, the integrated battery maintains the power supply to the user's equipment.
- Place all cords so that nobody can stand on them or trip over them. When connecting the unit to the power supply, follow the instructions in section 3 ("Setup and Installation").
- Make sure that no objects (e.g. necklaces, paper clips, etc) get inside the unit.
- In emergencies (e.g. damaged case, controls or power cables, penetration of liquids or foreign bodies) switch off the unit, disconnect from mains and contact the responsible customer service representative.
- Do not connect equipment that will overload the UPS or demand DC current.
- When cleaning the unit, follow the instructions in section 6 ("Maintenance").
- Data transmission lines should not be connected or disconnected during a thunderstorm.
- The sum of the leakage currents (currents in the earth conductor) from the UPS and connected loads must not exceed the value of 3.5 mA.
- Remote Power Off (RPO) and Remote On Off (ROO) terminals are located on the rear side of the unit (see section 4.4.8) When the relevant connections are open, the logic circuit will immediately shut down the UPS output.
- When installing units in racks, do not allow racks to become "top heavy". Install heaviest equipment (typically the UPS and batteries) near bottom of rack, and install this equipment before installing equipment higher in

the rack.
- This unit is equipped with a safety-inspected mains line and must only be connected to a grounded earthing-contact socket.
- Make certain that the socket on the unit or the earthing contact socket of the house installation is freely accessible.
- This is a category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.

1.4 Battery Safety

⚠ ***WARNING:*** *The batteries installed in the UPS and within the battery packs contain electrolyte. Under normal conditions the containers are dry. A damaged battery may leak electrolyte that can be dangerous in contact with the skin and cause irritation to the eyes. Should this happen, wash the affected part with copious amounts of water and seek immediate medical advice.*

- Voltage is always present on the battery terminals.
- Even when discharged, a battery has the capacity to supply a high short circuit current, which, in addition to causing damage to the battery itself and to associated cables, may expose the operator to the risk of burns.
- Batteries should not be kept in storage for periods exceeding 6 months at 25ºC without being recharged (having been charged to 100% at the beginning of any such period). If these conditions are not respected the performance of the battery can no longer be guaranteed. It is advisable to recharge the batteries at least once every 4 months.
- Since new batteries often do not provide full capacity after an initial charge it may be necessary to carry out a number of discharge/recharge cycles before optimum performance is achieved.
- In order to protect the environment, batteries must be disposed of in accordance with the regulations governing disposal/recycling of toxic and harmful waste.

For replacement of batteries located in a service access area:

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.
- When replacing batteries, replace with the same type and number of batteries or battery packs.
- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic
- A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
  - ·Remove watches, rings, or other metal objects.
  - ·Use tools with insulated handles.
  - ·Wear rubber gloves and boots.
  - ·Do not lay tools or metal parts on top of batteries
  - ·Disconnect charging source prior to connecting or disconnecting battery terminals.
  - ·Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

1.5 Environmental Considerations

This unit contains batteries. Their disposal should be made in accordance with the applicable legislation in your country.

The lead and acid contained by the batteries can be harmful for the environment.

The units should be disposed of at the end of their lifetime in accordance with the applicable legislation in your country.

We take into consideration environmental aspects as a part of the design of our units, trying to minimize their environmental impact. This implies using those technological advantages that allow reduction of the use of hazardous substances and the generation of toxic and dangerous residues.

This manual includes recommendations created to optimize the operation of the unit and its components.

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1.6 Notices regarding the EU Declaration of Conformity

This unit is in conformity with the following European directives:

73/23/EWG. Directive of the council for adaptation of the legal regulations of the member states regarding electrical equipment for use within specific voltage limits, modified by directive 93/68/EWG.

89/336/EWG. Directive of the council for adaptation of the legal regulations of the member states regarding electromagnetical compatibility, modified by directive 91/263/EWG, 92/31/EWG and 93/68/EWG.

Conformity is established through compliance with the following standards:

-EN 62040-1-1
-EN 62040-2

Additional information regarding adherence to these directives is included in the appendices NSR and EMC of the EU Declaration of Conformity.

If needed, the EU Declaration of Conformity can be requested from the manufacturer.

1.7 Repacking of Unit

Do not pack the unit until at least two hours have elapsed since the last recharge.

Place the equipment in bags made of a material sufficiently porous to allow it to breathe (e.g. 100µm polyethylene).

Do not remove air from the packaging.

When packing unit for movement by common carrier, place in original or equivalent packaging container.

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2 About This Manual

2.1 Introduction

This manual contains information regarding the installation, operation and use of the Uninterruptible Power Supply (UPS).

Consult this manual before installation of the equipment. This manual should be kept for later reference for operation and maintenance of the UPS.

2.2 Device Overview

These UPS units are delivered with various nominal powers and in various housings.

The following table provides an overview of the various versions of the unit:

Housing	Designation	Nominal Power
Tower (upright unit)	Active 700 T	700 VA
	Active 1000 T	1000 VA
	Active 1500 T	1500 VA
Rack/Tower convertible (can be upright or rack-mounting unit)	Active 1000 RT	1000 VA
	Active 1500 RT	1500 VA
	Active 2000 RT	2000 VA
	Active 3000 RT	3000 VA

Depending on your local market, these units can include a front panel based on LED indicators or a front panel with a LCD Display.

For units which include a front panel based on LED indicators as standard, front panels with LCD display are available as accessory. These front panels have to be ordered separately. Installation of the front panel with LCD display must be carried out by qualified technicians. Please contact the responsible customer service representative. For further details on installation, please see section 6.5.

The following battery packs are available:

Housing	Designation	Compatible UPS Unit
Tower (upright unit)	BP-A1000/1500 T	Active 1000 T Active 1500 T
Rack/Tower convertible (can be upright or rack-mounting unit)	BP-A1000/1500 RT	Active 1000 RT Active 1500 RT
	BP-A2000/3000 RT	Active 2000 RT Active 3000 RT

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2.3 Symbols

ATTENTION: *Indicates instructions, which if not observed, may endanger reliability of your UPS or the security of your data.*

WARNING: *Indicates instructions, which if not observed, present risk of electric shock, may endanger your life, your health, reliability of your UPS or the security of your data.*

NOTE: *Indicates instructions and comments that provide further details on the UPS and complement the main text.*

2.4 Documentation structure

These instructions can be supplemented with additional sheets, which e.g. describe specific extensions or options.

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3 Setup and Installation

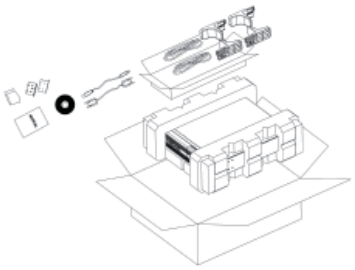
3.1 Delivery

This unit has been thoroughly checked before shipment. Upon receipt, check the packaging and ensure that the contents are undamaged. Any damage must be reported to the shipper and any missing parts must be reported to the supplier immediately.

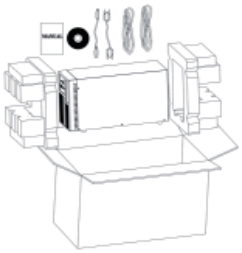
3.2 Unpacking

Care should be taken when removing the packaging in order to avoid damaging the unit. Check all packaging materials to ensure that no items are discarded (please see below figures). Note that they are only descriptive figures whose content is subject to changes according to local markets.

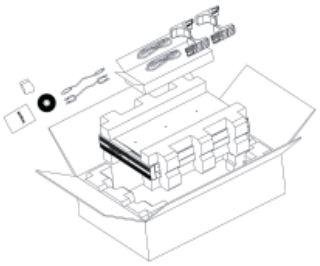
1 and 1.5kVA rack/tower units



Tower units



2 and 3kVA rack/tower units



3.3 Scope of delivery

The following items are included within the packaging:

3.3.1 Tower units (UPS)

- 1 x this user manual
- 1 x UPS unit
- 1 x quickstart guide
- 1 x CD with user software
- 2 x connection cables IEC320 C14 (male) - IEC C13 (female) for the UPS output
- 1 x RS232 interface cable
- 1 x USB cable

3.3.2 Tower units (Battery Packs)

- 1 x Battery Pack unit
- 1 x battery extension cable
- 1 x battery pack detection cable for auto-detection of number of battery packs connected

3.3.3 Rack/Tower units (UPS)

- 1 x this user manual
- 1 x UPS unit
- 1 x quickstart guide
- 1 x CD with user software
- Connection cables as per below:

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1000, 1500 and 2000VA models	3000VA models
2 x connection cables IEC320 C14 (male) - IEC C13 (female) for the UPS output	1 x connection cable Schuko (male) - IEC320 C19 (female) for the UPS input 1 x multisocket extension IEC320 C20 (male) - 3 x Schuko (female) for the UPS output

- 1 x RS232 interface cable
- 1 x USB cable
- 2 x front brackets for rack-mounting and required mounting hardware
- 2 x sets of tower feet for floor-mounting
- 2 x sliding rail kits for rack-mounting (optionally) and required mounting hardware

3.3.4 Rack/Tower units (battery packs)

- 1 x Battery Pack unit
- 1 x battery extension cable
- 1 x battery pack detection cable for auto-detection of number of battery packs connected
- 2 x front brackets for rack-mounting and required mounting hardware
- 2 x spacers to be assembled with the sets of tower feet for floor-mounting
- 1 x plate for securing the battery pack to the UPS for floor-mounting
- 2 x sliding rail kits for rack-mounting (optionally) and required mounting hardware

3.4 Storage

If it is not intended that the UPS be used within seven days of delivery, attention shall be paid to the storage conditions.
The UPS should be stored in a clean, dry environment and away from temperature extremes. It is recommended that the unit be stored in a temperature controlled, moderate humidity environment. The table below provides the temperature and humidity storage limits:

Temperature limits	-25ºC/50ºC (w/o batteries) -15ºC/40ºC (with batteries)
Relative humidity (non-condensing)	10-90%

3.5 Handling

The UPS must be kept upright at all times and handled with care. Damage may be caused if dropped or subjected to severe impact.

3.6 Environmental Conditions

The UPS tower version must be installed vertically. The UPS rack/tower version (RT hereinafter) can be installed vertically or horizontally, depending on the desired arrangement.

In any case, it must be installed on a level and even surface and in an area protected from extremes of temperature, water, humidity and the presence of conductive powder or dust (see section 3.10). Do not stack units and do not place any objects on top of a unit.
The functional temperature range of the UPS is specified in section 8 (“Technical Specifications”).
The ideal ambient temperature range is 15ºC to 25ºC.

Expected battery runtimes and battery life is defined at 20ºC. Increments of temperature above 25ºC will reduce the expected battery life.

3.7 Floor Loading

Taking into consideration the weight of the UPS and extension battery packs of Tower models and RT models operating as Tower, it is necessary that the floor in the chosen location be capable of supporting the weight of the units.

NOTE: *Weights for the UPS and battery packs are shown in section 8 ("Technical Specifications").*

3.8 Rack Loading

Taking into consideration the weight of the UPS and extension battery packs of RT models that may be mounted in an associated rack, it is necessary that the chosen cabinet be capable of supporting the weight of the units.

NOTE: *Weights for the UPS and battery packs are shown in section 8 ("Technical Specifications").*

3.9 Ventilation

It is necessary to leave a minimum space of at least 50 mm in front and rear of the UPS to allow a flow of air.

Electrical maintenance and servicing requires access to the front and back of the UPS. Provide the necessary space to allow service personnel access to the UPS.

3.10 Installation Data

Item	Specification
Ambient temperature	0ºC to 40ºC
Relative humidity (non condensing)	20%-90%
Environment	Controlled (office or similar)
Max. altitude (w/o derating)	3.000 meters
Input power connection	Rear
Output power connection	Rear
Battery power connection	Rear
Air inlet	Front
Air outlet	Rear

3.11 Rack-Mounting the UPS or External Battery Cabinets (RT Models Only)

The Rack/Tower UPS's and external battery packs can be rack-mounted in four-post frames. The UPS and external battery packs use identical mounting hardware and the procedure for mounting either is the same.

ATTENTION: *The UPS draws cooling air from the front. If the rack has a door on the front, make sure that there is some clearance between the vents and the rack door.*

Because of the weight and dimensions of these units (particularly the 2 and 3kVA models), it is strongly recommended that two people lift the unit for rack-mounting. If only one person is available, it may be possible to disconnect and take out the UPS internal batteries, rack-mount the UPS without batteries (less weight) and re-connect the internal batteries once that the UPS is rack-mounted.

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Please use only the supplied fasteners to attach the supplied mounting brackets to the UPS or external battery packs.

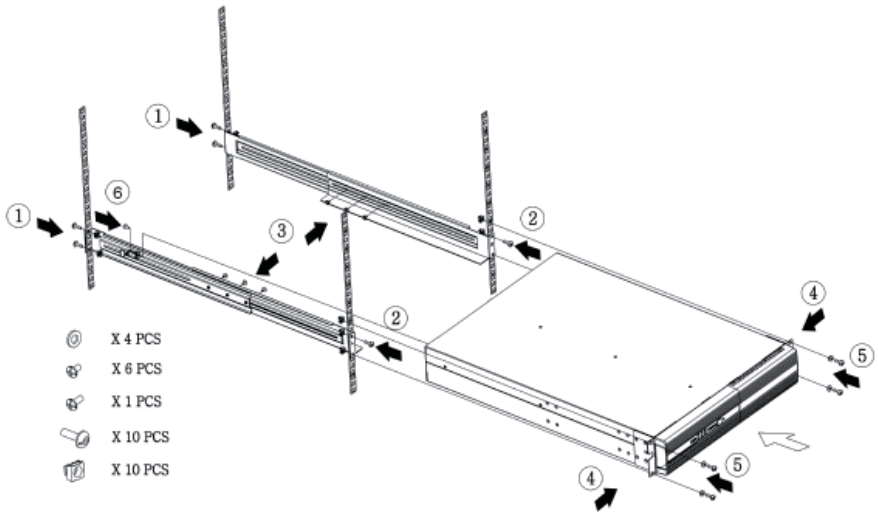
If external battery packs are included in your installation, please mount them first and as low as possible. Start with the lowest available position and work up. Your UPS should be installed last and end up on the top of all the battery units for proper cable routing.

ATTENTION: *Use all supplied mounting hardware on each UPS and external battery pack. NEVER depend on lower devices to support other devices.*

All mounting materials are available (bundled or optionally) to install the UPS into a rack. To prepare the UPS and external batteries for use in a rack configuration, first install the sliding rails (optional accessory), and then install the UPS and batteries following the steps below:

1. Attach rear of rails to rear of rack with two screws provided
2. Attach front of rails to front of rack with one screw provided
3. Assemble side rails and secure each rail together with three screws
4. Attach front brackets to each side of UPS with four screws on each side
5. Slide UPS into position in the rack and secure with two screws on each side of UPS
6. Attach rail to rear side of the UPS (fixing point for safer transportation)
7. Repeat the above steps for each UPS or battery pack to be mounted

After mechanical installation is complete, please read section 4 for proper commissioning and operation of the system.



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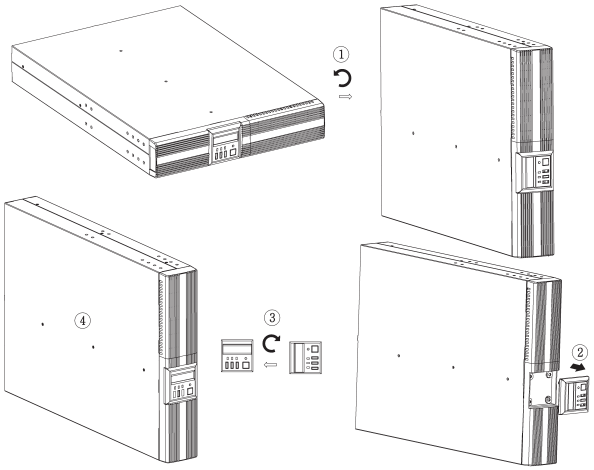
3.12 Floor Mounting the UPS or External Battery Cabinets (RT Models Only)

The RT UPS and external battery packs are designed to be floor standing as an alternative to rack mounting.



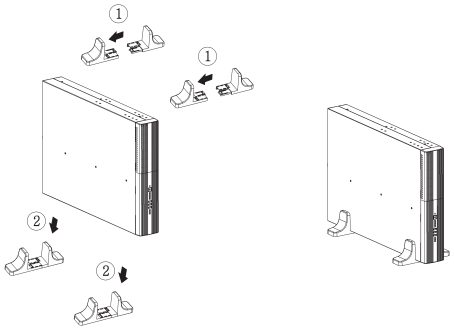
NOTE: *(only for units with front panel with LCD display). The LCD Display can be rotated to the adequate position when it is floor-mounted as illustrated in the next figure.*

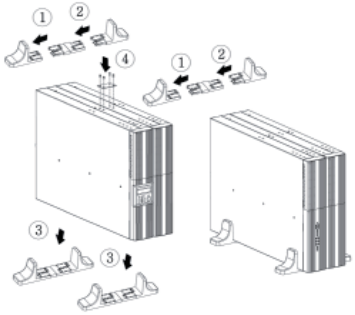
ATTENTION: *Use all supplied mounting hardware on each UPS and external battery*

After mechanical installation is complete, please read section 4 for proper commissioning and operation of the system.

3.12.1 Mounting the UPS only

Assemble the two sets of feet included with the UPS and place the UPS between feet as shown in the next figures.





3.12.2 Mounting the UPS plus One External Battery

Assemble the two sets of feet with the spacer provided and place the UPS and battery pack between feet as shown in the next figure. Then secure UPS and battery pack with plates and screws provided.

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4 Operation and Commissioning

4.1 Theory of Operation

ATTENTION: *This UPS is supplied with standard power cords and receptacles suitable for its use in your area of operation. It may be installed and operated by non-technician personnel.*

4.1.1 Line Mode

In use, the UPS is connected between AC input power and the load. The operation of this UPS is based on the on-line double conversion principle in which the input AC power is first converted to DC, and secondarily converted back to a sine wave of a fixed frequency and voltage to supply controlled power to the load. This UPS topology is used to prevent the critical load from suffering a variety of power line problems, including the total loss of input AC power.

4.1.2 Battery Mode

In the event of a mains failure, the maintenance-free batteries will continue to provide an uninterrupted supply of energy to the load. In practice, most mains failures are of relatively short duration. Therefore, the energy stored in the UPS's batteries is, in most cases, sufficient to ensure continuous operation of the connected systems until the mains power is re-established. In the event of a long lasting mains failure, the UPS can be utilized with shutdown software to enable a controlled shutdown of connected systems.

The most reliable method for determining the estimated battery runtime is the use of the LCD Display or the application of the user software or SNMP network card. With this software, the estimated remaining battery capacity is indicated before and during an AC power failure. These products also allow for automated shutdown procedures that can shut down the attached devices after safely closing open applications programs and the operating system. After return of the mains voltage, the UPS automatically restores power to the connected equipment and starts recharging the batteries.

4.1.3 Bypass Mode

If the UPS is in bypass mode, the load is supplied directly from the AC mains via the internal automatic bypass.

The unit automatically starts up in bypass when it is connected to the AC mains, supplying voltage immediately to the load. It is necessary to press the Inverter ON button to start the inverter and switch the unit to line mode (normal operation).

In the event of an overload on the UPS or internal UPS failure, the load is immediately supplied directly from the mains via this automatic internal bypass. As soon as normal status is re-established, an automatic switch over to inverter operation is performed.

Alternatively, the unit can be forced to bypass by the user using the front panel buttons or LCD Display. In this case, if the input parameters (voltage, frequency) go out of tolerances, the unit automatically shuts down.

4.1.4 ECO Mode

When the ECO Mode is enabled and mains conditions are within tolerances, the output is fed directly from the input via the internal bypass, thus achieving very high efficiency values and therefore saving energy. When ECO mode is activated and mains conditions go out of tolerances, the unit automatically feeds the load through the inverter to keep the load protected.

When the unit is operating on ECO mode, the internal battery charger is working. Therefore, batteries are kept charged.

For details on how to enable/disable this mode, please refer to 4.4.5.

4.1.5 Frequency Converter Mode

The UPS can operate as a frequency converter, providing 50Hz or 60Hz (whichever is selected) to the output when the input frequency is within the 40-70Hz range.

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When the unit is operating in this mode, there is a 50% power de-rating. This means that only 50% of the UPS nominal power can be used when operating in this mode.

If the unit is operating as a Frequency Converter, neither can ECO Mode be activated nor can the unit be forced to Bypass Mode.

For details on how to enable/disable this mode, please refer to 4.4.6.

4.1.6 Other Operating Details

This section covers other functionalities featured by the unit. For operating details on them, please see sections 4.2, 4.3 and 4.4.

a) Green Power Function: when the unit is on battery mode and there is no output load, the unit automatically shuts down after five minutes for battery and energy saving.

b) Cold Start: when this functionality is enabled, the unit has the capability to start up when mains power is not present, thus powering the load directly from the batteries.

ATTENTION: *When the UPS is started for the first time, AC power must be present*

c) Auto-Restart: when this functionality is enabled, the unit automatically starts up after autonomy time has finished upon mains power comeback. Otherwise, it is necessary to start up the unit manually.

NOTE: *assuming that this functionality is activated, if there is a mains failure just after the unit has automatically started up, autonomy time will be short as the batteries have not been fully charged.*

d) Site Wiring Fault detection: the unit can detect if input line and input neutral have been inverted and report a fault in that case.

e) Battery test: the UPS can perform a battery test in two different ways: manually, upon user request, or automatically, with a fixed interval between tests.

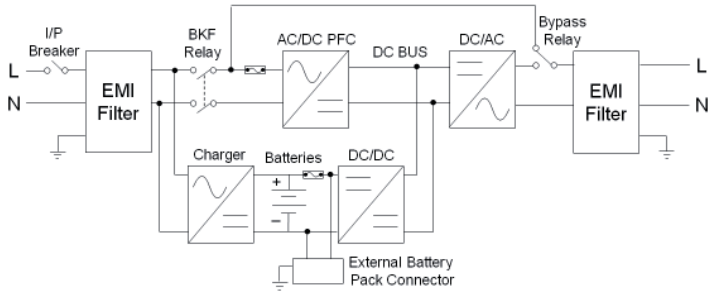
f) Controllable outlets: this UPS includes two groups of output controllable sockets (outlet 1 and outlet 2). Each group can be configured to automatically shut down when the remaining battery capacity goes below a certain value (75%, 50%, 25% or 0%) or upon user request.

ATTENTION: *It is suggested that the highest priority equipment be attached to the main outlets and that lower priority loads be attached to the controllable outlets.*

g) Remote On Off (ROO) / Remote Power Off (RPO): the unit has terminals on the rear side that allow the user to remotely shut down and start up the unit (ROO) or remotely shut down the unit without the option of re-starting it remotely (RPO). For operating details, please see section 4.4.8.

h) Compatibility with gensets: this UPS can operate with most of the gensets available in the market.

4.1.7 Block Diagram



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4.2 Front Panel Indicators and Operating Elements Description

4.2.1 Units with LED indicators

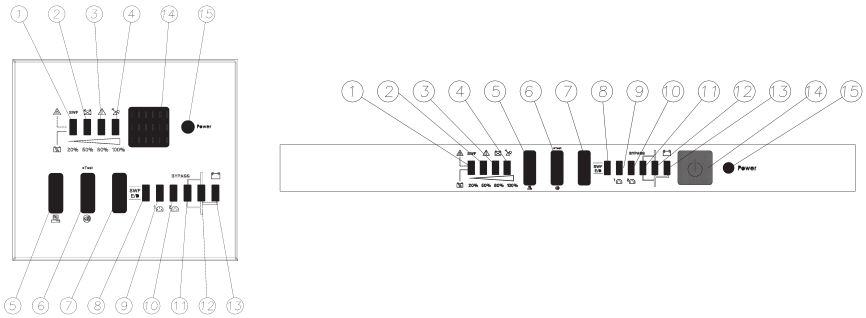
Depending on your local market, the UPS can be equipped with a front panel containing a series of switches and indicator LED's that provide the operator with the current status of the UPS and the ability to change UPS operational mode.

NOTE: *for units with front panels with LED indicators, front panels with LCD display are available as an accessory and have to be ordered separately. For operation details about them please refer to section 4.2.2*

4.2.1.1 Description of the elements

The front panel contains a series of switches and indicator LEDs that provide the operator with the current status of the UPS and the ability to change UPS operational mode:

- Inverter ON/OFF switch and LED
- A simplified block diagram of the UPS shows the current operational mode of the UPS (i.e. line mode, battery mode, bypass mode)
- Two LED indicators show the current status (ON or OFF) of the controllable outlets 1 and 2.
- Four additional LEDs provide error status, UPS load percentage or battery charge percentage depending on the associated front panel button status.
- Site Wiring Fault detection switch and LED



1. Site Wiring Fault Detection LED
2. Battery Fault LED
3. UPS Fault LED
4. UPS Overload LED
5. Display Selection Button
6. LED Test/Alarm Reset Button
7. Site Wiring Fault E/D Button
8. Site Wiring Fault E/D LED
9. Outlet 1 ON/OFF LED
10. Outlet 2 ON/OFF LED
11. Bypass Mode LED
12. Line Mode LED
13. Battery Mode LED
14. Inverter ON/OFF Button
15. Inverter ON LED

4.2.1.2 Operation

The following chart describes functions and operations of these buttons and LEDs

Button/LED	Function	Operation/Definition
Button 14	Inverter ON/OFF Button	Press one second to switch on/off the inverter
Button 7	Site Wiring Fault E/D Button	Press seven seconds to enable/disable Site Wiring Fault detection
Button 6	Mute Buzzer (Alarm Reset)	Press one second to mute the buzzer
	LED test	Press for LED test (all LEDs flashing)
	Force the unit to bypass or comeback	Press buttons 6 and 5 for four seconds to force the unit to bypass or to return from bypass
	Reset LCM Alarm (alarm which indicates end of estimated battery life)	Press buttons 6 and 5 for three seconds to reset this alarm (if the alarm is active, it is necessary to push these buttons 4 more seconds to switch the unit to bypass, as per above functionality)
Button 5	Show Output Load level	Press to show output load level on LEDs 1, 2 3 and 4 (by default they show battery capacity level)
	Cold Start Enable/Disable	Press five seconds to enable/disable cold start functionality
LED 1 (*)	Site Wiring Fault Detection LED	Indicates if Site Wiring Fault has been detected
LED 2 (*)	Battery Fault LED	Indicates if a battery fault has been detected
LED 3 (*)	UPS Fault LED	Indicates if a UPS fault has been detected
LED 4 (*)	UPS Overload LED	Indicates if an output overload has been detected
LEDs 1, 2, 3 & 4 (*)	Battery Capacity Level / Output Load Level	Indicates battery capacity level (by default), or output load level if button 5 is pressed
LED 8	Site Wiring Fault E/D LED	Indicates if Site Wiring Fault detection is enabled or disabled (enabled: ON; disabled: OFF)
LED 9	Outlet 1 ON/OFF LED	Indicates if group 1 of the output controllable sockets is supplying power or not (supplying power: ON; not supplying power: OFF; status change in progress: flashing)
LED 10	Outlet 2 ON/OFF LED	Indicates if group 2 of the output controllable sockets is supplying power or not (supplying power: ON; not supplying power: OFF; status change in progress: flashing)
LED 11	Bypass Mode LED	Indicates if the unit is on bypass mode (flashing)
LED 12	Line Mode LED	Indicates if the unit is on line mode (ON)
LED 13	Battery Mode LED	Indicates if the unit is on battery mode (ON)
LED 15	Inverter ON LED	Indicates if the inverter is ON or OFF

(*) These LEDs show battery capacity level or output load level (depending on button 5) and normally they should be read as a group. However, in case of certain events (SWF, Battery Fault, UPS Fault or UPS Overload), they pass to indicate it by flashing and should be read individually.

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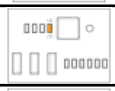
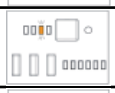
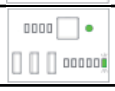
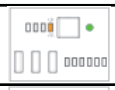
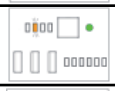
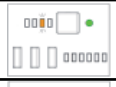
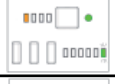
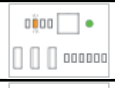
4.2.1.3 Indicators

The following chart describes visual and acoustic indications when certain conditions happen. For visual indications, only the representative LEDs are shown (the others may be ON or OFF, depending on other operative conditions).

LED display		Indicators	Acoustic	UPS Condition
		All LEDs flashing three times	Three beeps	Start-up sequence
		LED 4 flashing. LEDs 1, 2 & 3 off	Continuous beep	Overload fault
		LED 4 flashing. LEDs 1, 2 & 3 off	Continuous beep	Inverter shortcircuit fault
		LED 3 flashing. LEDs 1, 2 & 4 off	Depending on fault	Other UPS fault
		LED 13 flashing three times	Three beeps	Line Mode to Battery Mode
		LED 4 ON LED 3 ON LED 2 ON LED 1 ON LED 1 OFF LED 2 OFF LED 3 OFF LED 4 OFF LED 4 ON	Continuous beep	Remote Power Off warning
		LED 4 flashing. LEDs 1, 2 & 3 off	One beep per second	Overload warning
		LED 2 flashing. LEDs 1, 3 & 4 off	One beep per second	Battery disconnected or battery test fault
		LED 3 flashing. LEDs 1, 2 & 4 off	One beep per second	Charger fault
		LED 1 ON, LED 13 flashing	One beep every three seconds	Battery Low
		LED 2 flashing. LEDs 1, 3 & 4 off	One beep every 30 minutes	LCM Alarm (end of battery life)
		LED 8 ON	-	Site Wiring Fault detection enabled
		LED 1 flashing, LEDs 2, 3 & 4 OFF. LED 8 ON	Continuous beep	Site Wiring Fault Detected

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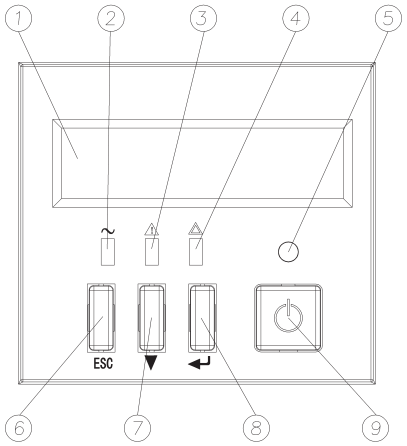
4.2.2 Units with LCD Display

Depending on your local market, the UPS can be equipped with a front panel with a LCD Display instead of LED indicators.

NOTE: *for units with front panels with LED indicators, front panels with LCD display are available as an accessory and have to be ordered separately*

1. Display
2. Mains LED (green): illuminates if mains input power is within tolerances
3. Bypass Mode/ECO Mode LED (orange): illuminates if the unit is in bypass (forced, due to ECO mode…)
4. Fault LED (red): illuminates if the unit is reporting a fault: battery fault, inverter fault, BUS fault…
5. Inverter ON LED (green): illuminates if the inverter is ON
6. ESC Button (goes up one level on the menu hierarchy). Note: press this button for three seconds to reset the LCM alarm (alarm which indicates end of estimated battery life).
7. Scroll-Down Button (scrolls down through menus and submenus)
8. ENTER Button (goes down one level on the menu hierarchy or selects the displayed option)
9. Inverter ON/OFF Button (Switches on/off the inverter)



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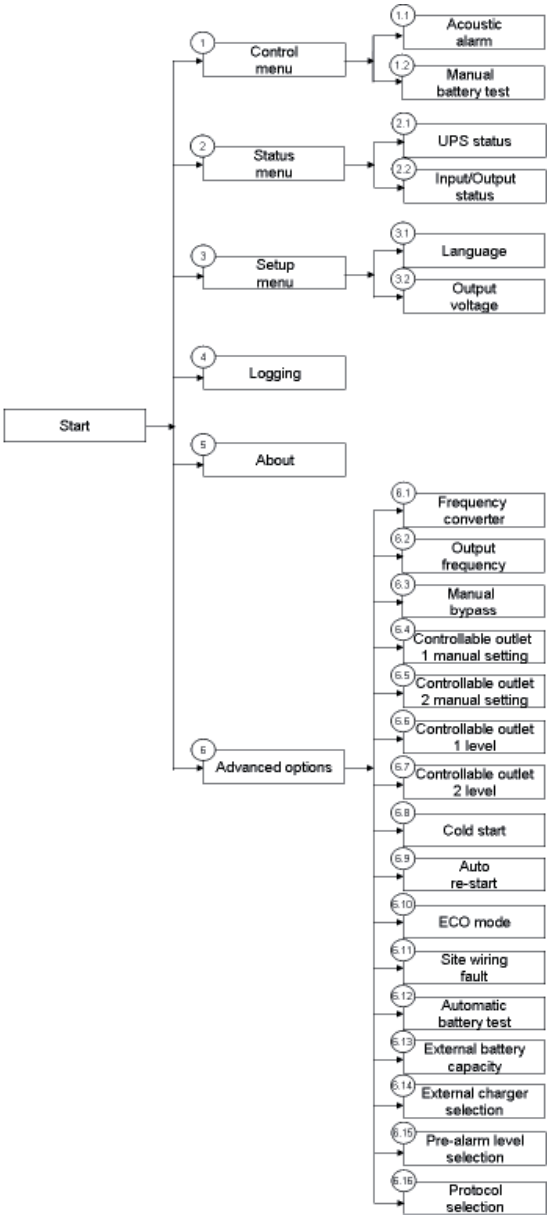
4.2.2.1 Menus and Functionalities

Functions available in the menus and sub-menus are explained below.



MENU 1.- CONTROL	Submenu	Functionality
	1.1 Acoustic Alarm	Activation or deactivation of acoustic alarm (buzzer)
	1.2 Manual Battery Test	Performs a battery test when this option is selected

MENU 2.- STATUS	Submenu	Functionality
	2.1 UPS Status	Displays global UPS Status (operation mode, faults, warnings…)
	2.2 Input/Output Status	Displays input and output values (voltage, frequency, load…)

MENU 3.- SETUP	Submenu	Functionality
	3.1 Language	Language selection (English, Spanish, Italian, French, Portuguese, German)
	3.2 Output Voltage	Selects nominal output voltage (200V, 208V, 220V, 230V or 240V)

MENU 4.- LOGGING	Functionality
	Displays the last five events (faults, warnings…) stored by the UPS and the runtime when they happened. These stored events are explained in section 4.2.2.2

MENU 5.- ABOUT	Functionality
	Displays power rating, serial number of the UPS, firmware version and current unit runtime

MENU 6.- ADVANCED OPTIONS	Submenu	Functionality
	6.1 Frequency Converter	Enables or disables this operation mode (please check 4.1.5 and 4.4.6 for more details)
	6.2 Output Frequency	Selects nominal output frequency: 50Hz or 60Hz (only frequency converter mode)
	6.3 Manual Bypass	Forces the UPS to bypass mode and vice-versa
	6.4 Controllable Outlet 1 Manual Setting	Switches on/off outlet 1 (1st group of output controllable sockets)
	6.5 Controllable Outlet 2 Manual Setting	Switches on/off outlet 2 (2nd group of output controllable sockets)
	6.6 Controllable Outlet 1 Level	Selects remaining battery capacity level (75%, 50%, 25% or 0%) below which outlet 1 (1st group of output controllable sockets) automatically switches off
	6.7 Controllable Outlet 2 Level	Selects remaining battery capacity level (75%, 50%, 25% or 0%) below which outlet 2 (2nd group of output controllable sockets) automatically switches off
	6.8 Cold Start	Enables/disables this functionality (start-up without mains power)
	6.9 Auto Re-Start	Enables/disables this functionality (automatic start-up after autonomy time has finished and upon mains power comeback)
	6.10 ECO Mode	Enables or disables this operation mode (please check 4.1.4 and 4.4.5 for more details)
	6.11 Site Wiring Fault	Enables/disables this functionality (detection of input phase-neutral inversion)
	6.12 Automatic Battery Test	Sets automatic battery test interval (daily, weekly, monthly…)
	6.13 External Battery Capacity	Selects external battery capacity (Ah) for special / customized configurations, in steps of 9Ah up to 250Ah (value selected pressing scroll-down button)
	6.14 External Charger Selection	Selects the number of external battery chargers (available as accessory for special / customized configurations) connected, from 1 to 3
	6.15 Pre-alarm Level Selection	Selects the remaining battery capacity level (75%, 50%, 25% or 0%) below which the “Battery Low” signal is activated
	6.16 Protocol selection	Communication protocol selection for particular advanced applications

Menu 6 includes options for advanced user and, consequently, access to this menu is protected with a password (a certain combination of keys).

When this menu is selected, you will be asked to press the code keys (PRESS CODE KEYS (CHECK U. MANUAL)). Correct code keys combination is:
Press ESC button and release it - press scroll-down button and release it - press ENTER button and release it.

If this sequence and combination of keys is followed, access to the menu will be granted and the display will show ACCESS GRANTED ATTENTION! If not, an error message will show (ACCESS DENIED WRONG CODE KEYS).

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4.2.2.2 Warning and fault indicators

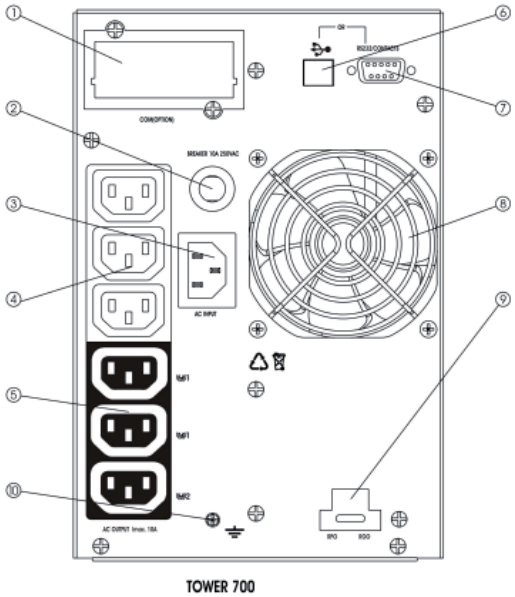
Display Message	Description
RPO ACTIVE	UPS stopped because RPO (Remote Power Off) has been activated
BATTERY FAULT	Battery failure has been detected. Please check batteries.
INVERTER OVERLOAD	Overload detected on the inverter (line mode or battery mode)
BYPASS OVERLOAD	Overload detected when the unit is on bypass mode
FAN FAULT	Fan failure has been detected
CHARGER OVERVOLTAGE	Charger is delivering overvoltage (internal failure)
DC BUS OVERVOLTAGE	DC voltage on the DC bus too high (internal failure)
DC BUS UNDERVOLTAGE	DC voltage on the DC bus too low (internal failure)
DC BUS UNBALANCE	DC voltage on the DC bus unbalanced (internal failure)
INVERTER OVERVOLTAGE	Inverter is delivering overvoltage (internal failure)
INVERTER UNDERVOLTAGE	Inverter is delivering undervoltage (internal failure)
INVERTER SHORT	Short-circuit on the inverter (internal failure)
SITE WIR. FAULT	Site wiring fault detected. Please check input wiring arrangement.

The LCD Display shows the last five events stored and the runtime when they happened (menu 4). They are listed from 1 to 5, being 1 the newest event and 5 the oldest event. Event 1 is the first one to be displayed and events from 2 to 5 are displayed sequentially by pressing the Scroll-Down button.

4.3 Rear Side

4.3.1 Tower units

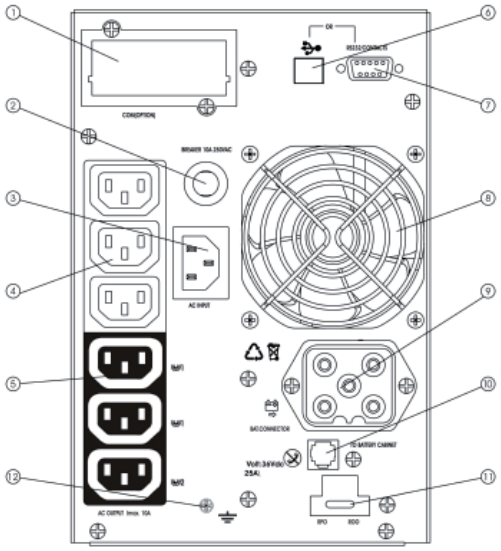
Active 700 T:



1. SNMP Slot
2. Input circuit breaker
3. Input power connection
4. Not controllable output sockets
5. Controllable outlets (2 groups)
6. USB port
7. RS232 port
8. Fan
9. ROO/RPO terminals
10. Earth screw

UK

Active 1000 T and Active 1500 T:

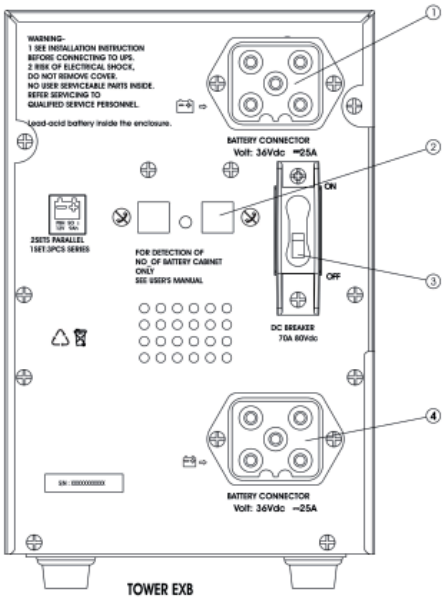


TOWER 1K&1.5K

1. SNMP Slot
2. Input circuit breaker
3. Input power connection
4. Not controllable output sockets
5. Controllable outlets (2 groups)
6. USB port
7. RS232 port
8. Fan
9. External battery pack connector
10. RJ11 port for battery pack detection cable
11. ROO/RPO terminals
12. Earth screw

BP-A1000/1500-T:

1. Battery pack connector
2. RJ11 port for battery pack detection cable
3. Circuit breaker
4. Battery pack connector

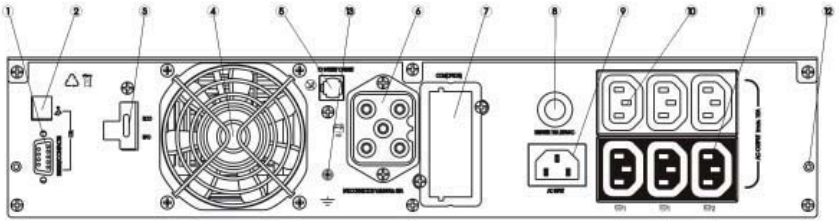

WARNING-
1 SEE INSTALLATION INSTRUCTION BEFORE CONNECTING TO UPS.
2 RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
Lead-acid battery inside the enclosure.
BATTERY CONNECTOR
Volt: 36Vdc ⎓25A
ON
OFF
2SETS PARALLEL
1SET:3PCS SERIES
FOR DETECTION OF NO. OF BATTERY CABINET ONLY
SEE USER'S MANUAL
DC BREAKER
70A 80Vdc
BATTERY CONNECTOR
Volt: 36Vdc ⎓25A

TOWER EXB

UK

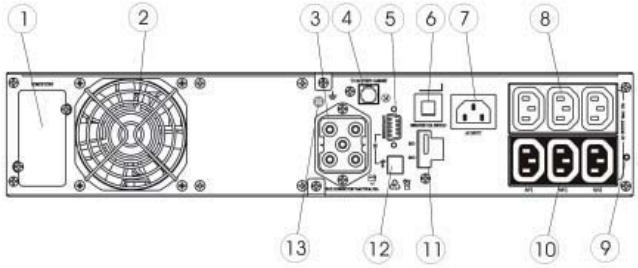
4.3.2 Rack/Tower units

Active 1000 RT and Active 1500 RT:



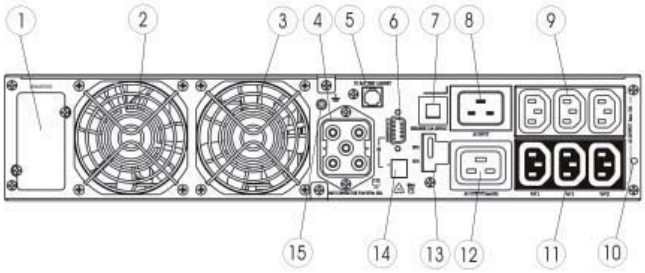
1. RS232 port
2. USB port
3. ROO/RPO terminals
4. Fan
5. RJ11 port for battery pack detection cable
6. External battery pack connector
7. SNMP slot
8. Input circuit breaker
9. Input power socket
10. Not controllable output sockets
11. Controllable outlets (2 groups)
12. Fixing point for sliding rail
13. Earth screw

Active 2000 RT:



1. SNMP slot
2. Fan
3. External battery pack connector
4. RJ11 port for battery pack detection cable
5. RS232 port
6. Input circuit breaker
7. Input power socket
8. Not controllable output sockets
9. Fixing point for sliding rail
10. Controllable outlets (2 groups)
11. ROO/RPO terminals
12. USB port
13. Earth screw

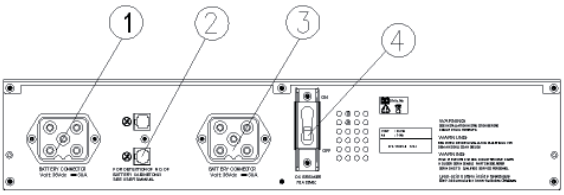
Active 3000



1. SNMP slot
2. Fan
3. Fan
4. External battery pack connector
5. RJ11 port for battery pack detection cable
6. RS232 port
7. Input circuit breaker
8. Input power socket
9. 10Amps not controllable output sockets
10. Fixing point for sliding rail
11. 10Amps controllable outlets (2 groups)
12. 16Amps output socket
13. ROO/RPO terminals
14. USB port
15. Earth screw

UK

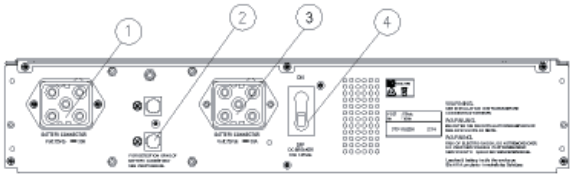
BP-A1000/1500-RT:



1. Battery pack connector
2. RJ11 port for battery pack detection cable
3. Battery pack connector
4. Circuit breaker

BP-A2000/3000-RT

1. Battery pack connector
2. RJ11 port for battery pack detection cable
3. Battery pack connector
4. Circuit breaker



4.4 Commissioning and Shutdown

4.4.1 Electrical preparations

⚠ ***WARNING:*** *Before connecting any input wiring to the UPS, take precautions to ensure that all circuits being used are the proper voltage and current required for the UPS.*

⚠ ***WARNING:*** *as soon as the UPS is connected to the AC mains supply, voltage is available at the output sockets (via internal bypass), even if the inverter ON button has not been pressed. When this button is pressed, the inverter is switched on and the UPS starts working in line mode.*

⚠ ***WARNING:*** *Electrical shock hazard: even when the UPS is disconnected from the mains, hazardous voltages may still exist at the output receptacles of the UPS. The UPS receives power from more than one source – AC input and DC input from batteries. All input sources (AC and DC) must, therefore, be disconnected before carrying out maintenance work inside the UPS.*

ℹ ***NOTE:*** *Under EMC regulations, output cables can not be longer than 10 meters, communication cables can not be longer than 3 meters and battery extension cables can not be longer than 3 meters.*

4.4.2 Connections

4.4.2.1 External battery packs connections

⚠ ***WARNING:*** *Before connecting a battery pack to the UPS, the circuit breaker of the battery pack must be switched to "OFF". After electrical connection with the UPS is established, the breaker must be switched to "ON".*

ℹ ***NOTE:*** *Each battery pack contains two battery connectors. The first battery pack is connected to the UPS using the cable supplied with the pack. Each additional extension battery pack is connected by attaching its cable to the previous pack.*

If external battery packs are to be used, they should be connected prior to connection the UPS to the input power. To connect external battery cabinets, follow the steps below:

1. Set the circuit breaker on each battery cabinet to the "OFF" position
2. Connect a battery extension cable between the battery receptacle on the rear of the UPS and one battery receptacle on the rear of the first battery pack
3. Connect a battery extension cable between one battery receptacle on the rear of the first battery pack

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and one battery receptacle on the rear of the second battery pack
4. Continue “daisy-chaining” the battery packs until all are connected.
5. Connect a battery pack detection cable between the RJ11 port on the rear side of the UPS and a RJ11 port on the rear side of the first battery pack
6. Connect a battery pack detection cable between one RJ11 port on the rear of the first battery pack and one RJ11 port on the rear of the second battery pack
7. Continue “daisy-chaining” the battery packs with the battery pack detection cables
8. Set the circuit breakers on each battery cabinet to “ON” position

NOTE: *The maximum quantity of external battery packs that can be connected to the UPS is four.*

NOTE: *for special or customized external battery configurations, it is possible to select the external battery capacity via LCD Display*

4.4.2.2 Power Connections

After all external batteries are connected, make the necessary input and output power connections by following the steps below.

1. Connect the input power cord to the AC inlet

NOTE: *The batteries will immediately begin charging upon availability of the input power.*

WARNING: *as soon as the UPS is connected to the AC mains supply, voltage is available at the output sockets (via internal bypass), even if the inverter ON button has not been pressed*

2. Connect the load to the UPS. It is suggested that the highest priority equipment be attached to the main outlets and that lower priority loads be attached to the controllable outlets.

NOTE: *With the LCD Display front panel or user software, the controllable outlets can be set to have a pre-scheduled shutdown during battery operation in order to conserve battery power for the highest priority loads.*

3. After all connections are made, follow the instructions in the next section (“Start-up Procedure”) to start your UPS and external battery packs

4.4.3 Start-up Procedure

ATTENTION: *This UPS is supplied with standard power cords and receptacles suitable for its use in your area of operation. It may be installed and operated by non-technician personnel.*

4.4.3.1 Initial UPS Start-up Procedure

ATTENTION: *When the UPS is started for the first time, AC power must be present*

Units with LED indicators	Units with LCD display
When using the UPS for the first time, confirm AC power is present. Following 4.4.2.2, power should be available to the connected equipment via internal bypass once the input has been connected to the AC mains. Press the inverter ON/OFF button to switch on the inverter and switch the UPS to line mode. The UPS will respond with some beeps and illuminations of LED indicators, and turn on the Line Mode LED and Inverter ON LED indicating that the unit is now in line mode. Protected power should now be available to the connected equipment via the inverter.	When using the UPS for the first time, confirm AC power is present. Following 4.4.2.2, power should be available to the connected equipment via internal bypass once the input has been connected to the AC mains. Press the inverter ON/OFF button to switch on the inverter and switch the UPS to line mode. The UPS will respond with some beeps and then turn on the Mains LED and the inverter ON LED indicating that the unit is now in line mode. The LCD Display will show the message LOAD PROTECTED and will indicate the output power. Protected power should now be available to the connected equipment via the inverter.

4.4.3.2 Normal Start-up Procedure

Units with LED indicators	Units with LCD display
Following 4.4.2.2, power should be available to the connected equipment via internal bypass once the input has been connected to the AC mains (if AC mains power is available). Press the inverter ON/OFF button to switch on the inverter; or press twice if AC power is not present and cold start is enabled to start up in battery mode. The UPS will respond with some beeps and illuminations of LED indicators. If AC power is present, the UPS will turn on the Line Mode LED and inverter ON LED indicating that the unit is now in line mode. If AC power is not present and cold start function is enabled, the UPS will turn on the Battery Mode LED and inverter ON LED indicating that the unit is now providing output power from the battery. **ATTENTION:** *If the overload indicator is on, or the "LOAD" indicator is beyond 100%, there are too many devices connected to the UPS. If only one device is connected to the UPS and the overload indicator is on, then the load's power demand exceeds the rating of the UPS, and a UPS with a higher power rating must be used.* **NOTE:** *If the UPS does not respond as above, please see section 7 ("Troubleshooting").*	Following 4.4.2.2, power should be available to the connected equipment via internal bypass once the input has been connected to the AC mains (if AC mains power is available). Press the inverter ON/OFF button to switch on the inverter; or press twice if AC power is not present and cold start is enabled to start up in battery mode. The UPS will respond with some beeps and illuminations of LED indicators. If AC power is present, the UPS will turn on the Mains LED and inverter ON LED indicating that the unit is now in line mode. The LCD Display will show the message LOAD PROTECTED and will indicate the output power. If AC power is not present and cold start function is enabled, the UPS will turn on the Inverter ON LED (but not the Mains LED) indicating that the unit is now providing output power from the battery. The LCD Display will show the message MAINS FAILURE and will indicate the estimated remaining back-up time. **ATTENTION:** *If the display shows a message indicating OVERLOAD, there are too many devices connected to the UPS. If only one device is connected to the UPS and the display shows a message indicating OVERLOAD, then the load's power demand exceeds the rating of the UPS, and a UPS with a higher power rating must be used* **NOTE:** *If the UPS does not respond as above, please see section 7 ("Troubleshooting").*

4.4.4 Forced Bypass Procedure

Units with LED indicators	Units with LCD display
To place the UPS into bypass mode, press and hold buttons 5 and 6 for four seconds (see figures on section 4.2.1). The UPS will switch to bypass mode and the Bypass Mode LED will illuminate. Follow the same procedure to make the UPS return to line mode. For other details regarding bypass mode operation, please see section 4.1.3.	To place the UPS into bypass mode, go to Menu 6 (Advanced Options) and then to submenu "Manual Bypass" and select TURN UPS TO BYPASS. Follow the same procedure to make the UPS return to line mode, selecting TURN UPS TO ONLINE in the same menu. For other details regarding bypass mode operation, please see section 4.1.3.

4.4.5 ECO Mode Activation/Deactivation Procedure

NOTE: *this functionality cannot be enabled / disabled using front panel buttons in units with front panel based on LED indicators*

In order to enable ECO mode, follow this procedure: with the unit operating in line mode, go to Menu 6 (Advanced options) and then to submenu "ECO Mode" and select ECO MODE ENABLE. The unit will start to operate in this mode immediately.

To return the unit to line mode, follow the same procedure, now selecting ECO MODE DISABLE.

For other details regarding ECO mode operation, please see section 4.1.4

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4.4.6 Frequency Converter Mode Procedure

NOTE: *this functionality cannot be enabled / disabled using front panel buttons in units with front panel based on LED indicators*

When the unit is in frequency converter mode, it is possible to select with the LCD Display the output frequency (50Hz or 60Hz) when the input frequency is in the 40-70Hz range. If the AC input is not within tolerances, the output frequency is 50Hz or 60Hz (whichever is selected) in battery mode.

In order to activate the frequency converter mode, follow this procedure: with the unit operating in line mode, press the inverter ON/OFF button to switch off the inverter and then disconnect the UPS from AC mains input. Before the UPS shuts down, go to Menu 6 (Advanced options) and then to submenu “Frequency Converter” and select ENTER FREQ. CONVERTER MODE. After that, go to submenu “Output Frequency” and select 50Hz or 60Hz. When you re-start the UPS, it will start up in frequency converter with the selected output frequency.

To deactivate this mode follow this procedure: press the inverter ON/OFF button and then go to Menu 6 (Advanced options) and then to submenu “Frequency Converter” and select EXIT FREQ. CONVERTER MODE. Later, press the inverter ON/OFF button to re-start the unit and it will start up normally.

ATTENTION: *when the unit is operating in this mode, there is a 50% power de-rating. This means that only 50% of the UPS nominal power can be used when operating in this mode.*

For other details regarding Frequency Converter Mode, please see section 4.1.5.

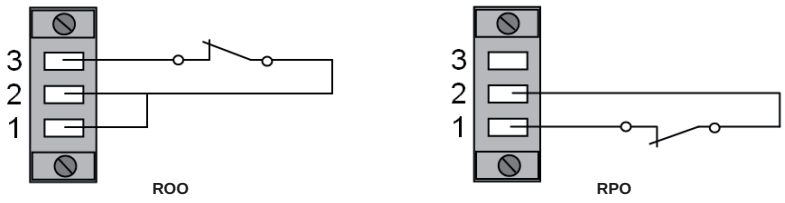
4.4.7 UPS Shutdown Procedure

Press the inverter ON/OFF button. The inverter will be switched off but the UPS will supply power to the connected loads via the internal bypass. To turn off all outputs and shutdown, it is necessary to disconnect the UPS from AC mains power.

To restart UPS, see section 4.4.3.2 (“Normal Start-Up Procedure”).

4.4.8 Remote Power Off (RPO) / Remote On Off (ROO)

The external connection to the RPO/ROO circuit is located on the rear side of the unit and is composed of three connector pins, as shown in the next figures.



The unit comes out of the factory with a wire which connects pins 1 and 2. For normal UPS operation, these pins must be kept connected.

In order to use the Remote Power Off (RPO) functionality, please remove this wire and connect a normally closed volt-free contact between pins 1 and 2. When this contact is open, the UPS will disconnect all loads and shut down. To return to normal operation, disconnect the unit from AC mains power, close the contact and re-start the unit following the procedure outlined in section 4.4.3.2.

In order to use the Remote On Off (ROO) functionality, please connect a wire between pins 1 and 2 (the UPS comes out of the factory with that wire) and connect a normally closed volt-free contact between pins 2 and 3. When this contact is open, the UPS will disconnect all loads. After that, if the contact is closed the unit will re-start and restore power to the connected loads.

For other details regarding ROO/RPO operation, please see section 4.1.6.

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5 Communication Interfaces

The UPS is equipped with a serial interface (RS232 and USB ports) and a communication interface slot. These interfaces can be used for:

- Direct communication between UPS and workstation/server
- Integration of the UPS as client into a network with centralized monitoring via a ManageUPS SNMP adapter in the interface slot
- Transfer of operational states to external alarm systems via volt-free contacts (with interface volt-free contact card, available as accessory, in the interface slot).

The necessary communication software packages and interface cables and cards are either bundled with the unit or available as accessories.

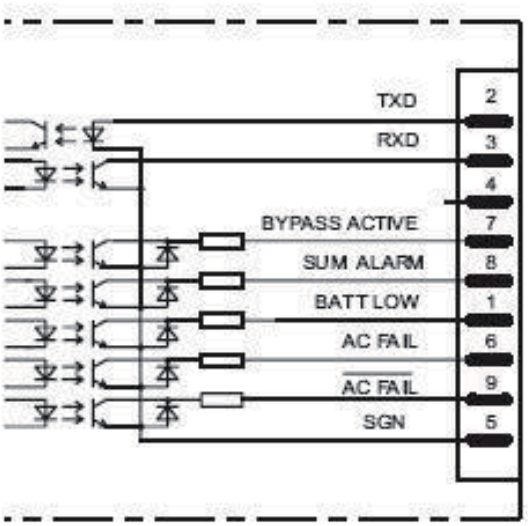
5.1 Serial Interface

Two serial interfaces are available: DB9 port (RS232) and USB port.

NOTE: *both ports cannot be used at the same time.*

5.2 DB9 port

The 9-pole SUB-D connector (pin contacts) contains RS232 compatible signals.



NOTE: *this interface is electrically isolated from all other circuits.*

Apart from the RS232 interface, five opto-coupled alarm signals are available as open-collector outputs. Pin distribution is as follows (see previous figure):

- SGN at pin 5: this connection point serves as a reference for all signals
- RxD at pin 3 and TxD at pin 2: correspond to the normal assignment of an RS232 interface
- BATTERY LOW at pin 1: this output is active when the battery capacity is below the pre-alarm level

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(please see section 4.2 for details on selection of this level) or when the remaining back-up time is less than two minutes.
- AC FAIL (low-active at pin 9 and high-active at pin 6): this signal is active when the mains voltage at the UPS input is not present for at least 10 seconds or the mains voltage exits the tolerance range. The signal is cancelled 850ms following mains restoration.
- BYPASS ACTIVE at pin 7: This signal is active when the device has been switched to bypass, the inverter is blocked and the power is supplied from the mains supply.
- SUM ALARM at pin 8: this output is low when one of the alarms “BATTERY LOW”, “AC FAIL” or “BYPASS ACTIVE” is active.

5.3 USB port

As with the RS232 interface, the USB port facilitates the protocol-data transfer. The USB port included with this UPS is classified as HID (Human Interface Device).

5.4 Interface Slot

The interface slot can be fitted with optional various cards. The connectors, designation and codes placed in the slot will therefore depend on the type of interface card used. A detailed description is enclosed with the interface cards which are available as accessories.

Interface cards available:

- SNMP adapter card (ManageUPS) for integrating the UPS into a network
- Volt-free contacts card

Please consult the available literature about these accessories or please ask your closest sales centre.

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6 Maintenance

6.1 Cleaning

Do not use scouring powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to get inside the UPS.

Make sure that the air vents on the UPS are not obstructed. Remove dust from the air vents with a vacuum cleaner.

Clean the outside of the UPS housing by wiping with a dry or slightly damp cloth.

6.2 UPS storage

For extended storage at ambient temperatures higher than 25ºC, the batteries should be charged for five hours once every four months. At higher storage temperatures it is advised that this period be reduced to two months.

To charge batteries it is not necessary to unpack the unit. Simply connect the UPS to an appropriate power source using the appropriate opening in the packaging and allow the batteries to charge for about five hours. After charging, note the date when recharging was performed on the UPS packaging.

6.3 Battery testing

The UPS does not require maintenance by the user; however, batteries should be checked periodically.

The UPS will automatically perform a battery self-test once a week. If a problem is discovered, the battery fault LED will illuminate or the LCD Display will show an error message. See section 7 (“Troubleshooting”) if a problem is found.

The frequency of testing can be changed via LCD Display or user software. Select battery self-test to be performed monthly, weekly, daily or none.

6.4 Battery replacement

ATTENTION: *the load attached to the UPS will not be protected against loss of input power during this procedure*

6.4.1 Replacing the UPS internal batteries

For replacement of batteries locates in a service access area:

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions.
- When replacing batteries, replace with the same type and number of batteries or battery packs.- Do not dispose of batteries in a fire. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic
- A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:
  Remove watches, rings, or other metal objects.
  Use tools with insulated handles.
  Wear rubber gloves and boots.
  Do not lay tools or metal parts on top of batteries
  Disconnect charging source prior to connecting or disconnecting battery terminals.
  Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to

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equipment and remote battery supplies not having a grounded supply circuit).

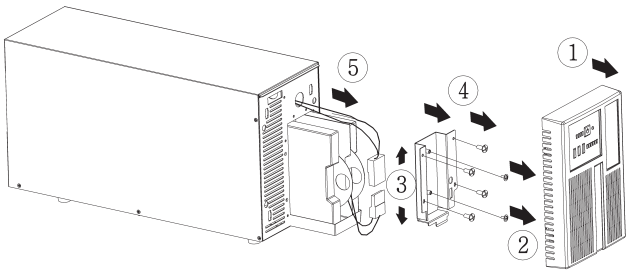
The UPS does not require maintenance by the user; however, battery maintenance is recommended in accordance with IEEE Recommended Practice for Maintenance, Testing and Replacement of Valve-Regulated Lead-Acid (VRLA) batteries for Stationary Applications (IEEE Std 1188-1996). When the batteries expire, trained battery service personnel must replace them. A certified disposal/recycling company should carry out disposal/recycling of the UPS and/or batteries. Exhausted rechargeable batteries are classified as “harmful toxic waste” and as such the law demands that they be disposed of/recycled by an authorized recycling center.

The manufacturer’s service center is fully equipped to deal with such batteries, in accordance with the law and with the greatest respect for the environment. Contact your customer service representative to arrange for maintenance and/or battery replacement.

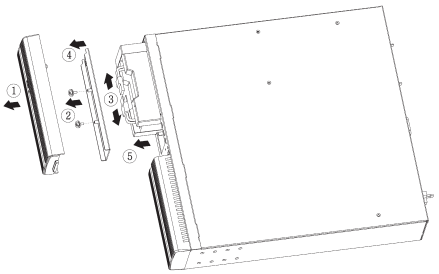
The typical battery life cycle is 3 to 5 years, at an ambient temperature of 25ºC. However, battery life is also dependant on the frequency and duration of mains failures or battery discharge cycles.

The BATTERY TEST (see section 6.3 “Battery Testing”) should be carried out periodically (6 to 12 months) in order to ascertain the general conditions of the batteries.

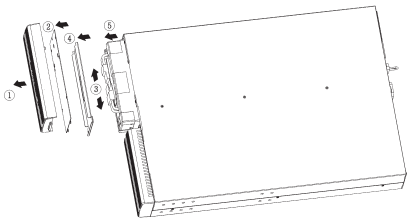
To replace internal batteries, place the UPS manually in bypass mode (see “Forced Bypass Procedure” on section 4.4.4) and follow the steps illustrated in the next figures:



Tower models



1/1.5kVA rack/tower models



2/3kVA rack/tower models

6.4.2 Battery disposal

The typical battery life cycle is 3 to 5 years, at an ambient temperature of 25ºC, but is also dependant on the frequency and duration of mains failures.

Once the battery has reached the end of its useful life, follow the procedure for battery replacement (section 6.4.1).

After the batteries are replaced, a certified disposal/recycling company should carry out disposal/recycling of the used batteries.

Exhausted rechargeable batteries are classified as “harmful toxic waste” and as such the law demands that they be disposed of /recycled by an authorized recycling center.

The manufacturer’s service center is fully equipped to deal with such batteries, in accordance with the law and with the greatest respect for the environment. Contact your customer service representative to arrange for maintenance and/or battery replacement.

6.5 Front Panel with LCD Display Installation

⚠ ***WARNING:*** *Installation must be carried out only by qualified technicians.*

Depending on your local market, the UPS can include a front panel based on LED indicators or a front panel with a LCD Display. For units which include a front panel based on LED indicators as standard, front panels with LCD display are available as accessory. These front panels have to be ordered separately.

In order to replace the front panel with LED indicators with the front panel with LCD display, the following steps (illustrated in the next figures) have to be followed:

⚠ ***WARNING:*** *Before performing this installation, ensure that the inverter is switched off and the input power cord is disconnected. Wait until all LEDs turn off (this may take around 1 minute after disconnection of the UPS) prior to performing this installation.*

1) Pull out the front panel with LED indicators
2) Unscrew the box containing the LED indicators from the front panel
3) Remove the box
4) Disconnect the flat cable from the box (please pay attention to the position of the cable)

Tower units	Rack/Tower units
5) Take the new front panel with the LCD Display and connect the flat cable to the box with the LCD Display (the cable must be in the same position as in the old front panel) 6) Insert the new front panel in the UPS	5) Take the new front panel with the LCD Display and pull out the box containing the LCD Display 6) Connect the flat cable to the box with the LCD Display (the cable must be in the same position as in the old front panel) 7) Insert the box with the LCD Display in the front panel 8) Insert the new front panel in the UPS

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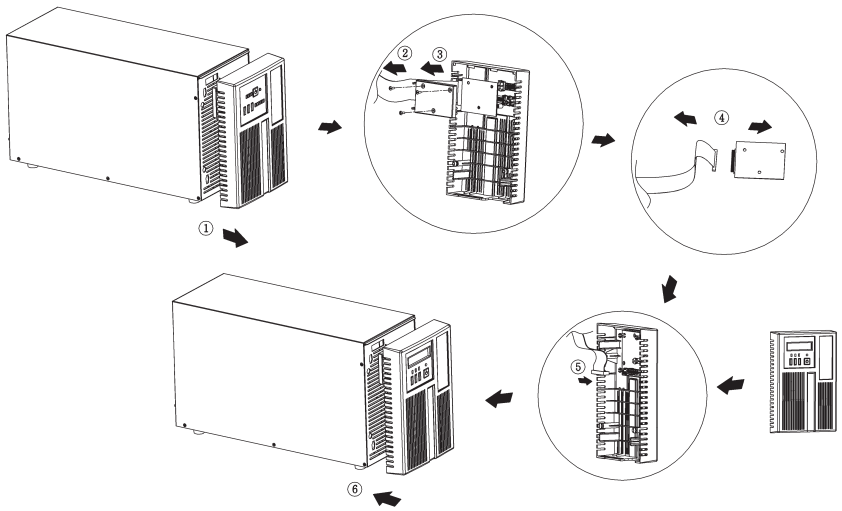
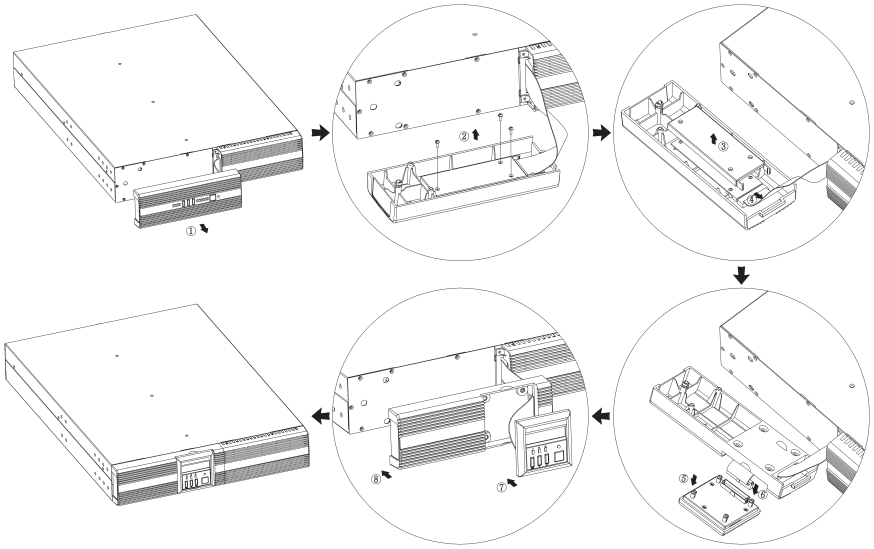


Tower models

Rack/Tower models



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7 Troubleshooting

If, in spite of the high reliability of this unit, problems should occur, please check the following points before contacting the responsible customer service representative:

- Is the mains voltage present at the UPS input?
- Is the input fuse defective or have circuit breakers tripped?

If you contact the responsible customer service representative, please have the following information ready:

- Unit information (model, product code/MLBF, serial number as per nameplate)
- An exact description of the problem (what loads are being operated, does the problem occur regularly or sporadically, etc)

For description of the indicators mentioned below, please see chapter 4.2.

Problem	Possible Cause	Corrective Actions
No indication No alarm (UPS switched off)	Mains switch switched off	Switch on mains switch
	No mains voltage present	Have mains inspected by qualified electrician
	Input fuse blown or input circuit breaker tripped	Replace with fuse of same type or switch on circuit breaker. If the problem persists, contact the responsible customer service representative
UPS Overload LED blinks/ buzzer beeps at intervals (or LCD Display shows overload message) UPS in bypass	Overload warning: UPS is overloaded (Unit on Line Mode)	Check the power drawn by the equipment and disconnect any short-circuited or non-priority devices
UPS Overload LED blinks/ buzzer beeps continuously (or LCD Display shows overload message) Load is dropped	Overload fault: UPS is overloaded (Unit on Battery Mode)	Check the power drawn by the equipment and disconnect any short-circuited or non-priority devices Re-start the UPS
Battery Fault LED blinks/ buzzer beeps at intervals (or LCD Display shows battery fault message)	A battery fault was detected during the automatic battery test	Check that battery connector is properly seated Replace the battery module
Battery Fault LED blinks/ buzzer sound long beep about once every hour	The battery is at end of life, runtime on battery is compromised	Reset alarm by pressing buttons 5 and 6 for 3 seconds (units with LED indicators) Reset the alarm by pressing ESC button for 3 seconds (units with LCD Display) Replace the battery module
Site Wiring Fault Detection LED blinks, Site Wiring Fault E/D LED is ON, buzzer sounds continuously (or LCD Display shows Site Wiring Fault message)	Phase reversal (line and neutral) has been detected on input power	Pull out mains plug and plug back in correctly
UPS Fault LED illuminates, buzzer beeps continuously (or LCD Display shows fault message)	UPS error	Contact the responsible customer service representative
	Overheating	Decrease ambient temperature
Autonomy less than specified	The fuse switch of the battery extensions is in the “OPEN” position	Move the fuse switch to the “ON” position
	Batteries are not fully charged	Charge batteries and test backup time. If the problem persists, contact the responsible customer service representative
	Batteries are defective	Contact the responsible customer service representative
	Charging device is defective	Contact the responsible customer service representative
No communication between UPS and PC	Wrong serial connection cable	Check whether the correct cable has been used
	Interface on the PC is being used by another process or is defective	Check whether other software/service is accessing the interface on the PC; try selecting a different serial interface
	Interference on the data cable	Lay cable differently/Re-install cabling

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8 Specification and back-up times

8.1 Specification

NOTE: We reserve the right to modify the information in these tables without prior notice.

8.1.1 Uninterruptible Power Supplies

	Active 700 T	Active 1000 T	Active 1000 RT	Active 1500 T	Active 1500 RT	Active 2000 RT	Active 3000 RT
UPS Rating	700VA	1000VA		1500VA		2000VA	3000VA
Housing	Tower	Tower	Rack/Tower	Tower	Rack/Tower	Rack/Tower	Rack/Tower
Technology	Advanced on-line double conversion						
Output Power (VA/W)	700/630	1000/900(*)		1500/1350(*)		2000/1800(*)	3000/2700(*)

INPUT		
Nominal input voltage (VAC)	200-240V	
Operative input voltage range (VAC)	120V-284V (depending on output load)	140-284V (depending on output load)
Nominal input frequency (Hz)	50/60Hz auto-selection	
Operative input frequency range (Hz)	50/60Hz +/-5% (40/70Hz if Frequency Converter Mode is activated)	
Input power factor	0,99 (batteries charged)	

OUTPUT	
Waveform	Pure sinusoidal
Nominal output voltage (VAC)	200(**) / 208(**) / 220 / 230(default) / 240 V (configurable via user software and optional LCD Display) (250 V under request)
Voltage regulation (%)	3%
Output frequency (Hz)	50/60Hz ±0,5% (same as input or selectable in Frequency Converter Mode)
Harmonic distortion (linear/non-linear load) THDv	Max. 4% / Max. 8%
Transfer time (line-battery-line) (s)	0
Overload capacity (line mode, output power factor 0.9)	<110% warning // 111-130%: 12 seconds (UPS to bypass) // >130%: 1,5 seconds (UPS off)
Shortcircuit protection	Yes

BATTERIES					
Type	Sealed maintenance-free lead acid (VRLA)				
Arrangement	1x2x7,2Ah	1x3x7,2Ah	1x3x9Ah	1x6x7,2Ah	1x6x9Ah
Advanced Battery Care	Yes				
Battery management	Battery pack auto detection, automatic runtime calculation, protection against deep discharge				

MECHANICAL							
Size (WxHxD, mm)	157x245x438	157x245x438	438x86 (2U)x482	157x245x488	438x86 (2U)x482	438x86 (2U)x657	438x86 (2U)x657
Weight (kg)	13	15	18	18	20	26	31

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GENERAL					
Bypass	Yes (automatic)				
Efficiency in line mode (%)	86%	86%	86%	88%	90%
Maximum Acoustic Noise in on-line mode at 1 meter (dB)	40	41	41	47	47
Variable fan speed	Yes				
External battery packs	No	Yes			
Color	Grey Anthracite (RAL7016)				

CONNECTIVITY	
Communication Ports	1xDB9 (RS232 signals and status signals), 1xUSB (***)
Communication Slot	1xslot for SNMP/TCP-IP/Web interface or volt-free contacts card accessory
Remote Power Off (RPO)	Yes
Remote On/Off (ROO)	Yes
Status signals	Opto-coupled, open-collector signals available at DB9 port: Battery Low, AC Fail, Bypass Active, SUM Alarm

ENVIRONMENTAL	
Operating temperature	0 - 40 ºC
Storage temperature	-25 ºC / +50 ºC without batteries, -15ºC / +40ºC with batteries
Altitude	0-3000m
Relative humidity	10% to 90%

CONNECTIONS		
Input	1 x IEC320 C14 (10A)	1 x IEC320 C20 (16A)
Output	6 x IEC320 C13 (10A), 3 of them controllable (2 groups)	6 x IEC320 C13 (10A), 3 of them controllable (2 groups) 1 x IEC320 C19 (16A)

NORMATIVES	
CE Mark	Yes
Safety	EN 62040-1, EN 60950 (RD), TÜV, CB report, UL/cUL
EMC	IEC62040-2, class C2; IEC61000-4-3/3/4/5/6/8/11; VDE160; IEC61000-2-2
Performance	EN62040-3

(*)Output power with external battery packs is – 1000VA models: 1000VA/800W, 1500VA models: 1500VA/1200W, 2000VA models: 2000VA/1600W, 3000VA models: 3000VA/2400W.
(**) For output nominal voltage 200V, there is a power de-rating of 20% (the unit's nominal power is reduced by 20%). For output nominal voltage 208V, there is a power de-rating of 10% (the unit's nominal power is reduced by 10%).
(***) Both ports cannot be used simultaneously.

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8.1.2 Battery Packs

	BP-A1000/1500-T	BP-A1000/1500-RT	BP-A2000/3000-RT
Housing	Tower	Rack/Tower	Rack/Tower
Battery arrangement	2x3x7,2Ah	2x3x7,2Ah	2x6x9Ah
Protection	Breaker 70A/80Vdc	Breaker 70A/80Vdc	Breaker 70A/80Vdc
MECHANICAL			
Size (WxHxD, mm)	157x245x438	438x86(2U)x438	438x86(2U)x657
Weight (kg)	20	32	52
ENVIRONMENTAL			
Operating temperature	0 - 40 ºC		
Storage temperature	-15 ºC / +40 ºC		
Altitude	0-3000m		
Relative humidity	10% to 90%		

8.2 Runtime charts

Theoretical values with fully charged batteries and resistive load.

NOTE: *The maximum quantity of external battery packs that can be connected to the UPS is four.*

Active 700 T:

Load	UPS
55W	51 min.
110W	35 min.
170W	24 min.
225W	18 min.
280W	15 min.
335W	12 min.
390W	10 min.
450W	8 min.
505W	7 min.
560W	5 min.

Active 1000 T and Active 1000 RT:

Load	UPS	UPS + 1 BP	UPS + 2 BP	UPS + 3 BP	UPS + 4 BP
80W	63 min	239 min	438 min	661 min	861 min
160W	37 min	158 min	254 min	397 min	476 min
240W	26 min	91 min	197 min	262 min	372 min
320W	20 min	69 min	145 min	212 min	263 min
400W	15 min	55 min	97 min	174 min	220 min
480W	13 min	45 min	80 min	136 min	191 min
560W	11 min	38 min	69 min	99 min	161 min
640W	9 min	33 min	60 min	86 min	130 min
720W	7 min	29 min	51 min	75 min	99 min
800W	6 min	25 min	46 min	67 min	89 min

UK

Active 1500 T and Active 1500RT:

Load	UPS	UPS + 1 BP	UPS + 2 BP	UPS + 3 BP	UPS + 4 BP
120W	42 min	170 min	268 min	409 min	497 min
240W	25 min	84 min	180 min	234 min	331 min
360W	17 min	58 min	108 min	183 min	225 min
480W	13 min	44 min	78 min	129 min	183 min
600W	10 min	34 min	62 min	90 min	140 min
720W	8 min	26 min	51 min	74 min	98 min
840W	7 min	24 min	43 min	63 min	83 min
960W	5 min	21 min	37 min	55 min	72 min
1080W	4 min	18 min	32 min	48 min	64 min
1200W	3 min	16 min	28 min	42min	56 min

Active 2000 RT:

Load	UPS	UPS + 1 BP	UPS + 2 BP	UPS + 3 BP	UPS + 4 BP
160W	63 min	231 min	406 min	558 min	754 min
320W	37 min	163 min	236 min	358 min	445 min
480W	26 min	97 min	195 min	237 min	327 min
640W	19 min	73 min	153 min	207 min	237 min
800W	15 min	58 min	108 min	177 min	213 min
960W	13 min	48 min	86 min	146 min	190 min
1120W	11 min	40 min	73 min	114 min	166 min
1280W	9 min	35 min	63 min	93 min	142 min
1440W	7 min	30 min	55 min	81 min	116 min
1600W	6 min	27 min	49 min	71 min	96 min

Active 3000 RT:

Load	UPS	UPS + 1 BP	UPS + 2 BP	UPS + 3 BP	UPS + 4 BP
240W	42 min	173 min	238 min	371 min	456 min
480W	26 min	90 min	182 min	226 min	282 min
720W	18 min	62 min	123 min	185 min	218 min
960W	14 min	47 min	84 min	141 min	185 min
1200W	11 min	37 min	66 min	98 min	150 min
1440W	8 min	31 min	55 min	80 min	115 min
1680W	7 min	26 min	47 min	68 min	92 min
1920W	5 min	23 min	40 min	59 min	78 min
2160W	4 min	20 min	35 min	52 min	68 min
2400W	3 min	18 min	31 min	46 min	60 min

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